

STUDY OF THE DIGESTIVE FLORA OF 20 LEBANESE PATIENTS IN REMISSION OF CROHN'S DISEASE AND COMPARISON TO HEALTHY SUBJECTS.

G. Rizkallah¹, R. Sayegh², A. Hajj^{1,3}, P.H. Seksik⁴, G. Trugnan⁴, D. Karam Sarkis¹



1- Laboratoire de Microbiologie Moléculaire, Saint-Joseph University, Beirut, Lebanon. 2- Service de Gastro-entérologie, Hotel Dieu de France, Saint-Joseph University, Beirut, Lebanon. 3- Laboratoire de Pharmacologie, Pharmacie Clinique et Contrôle de Qualité des Médicaments, Saint-Joseph University, Beirut, Lebanon. 4-URL U1157 INSERM/ UMR720, Paris 6 University, Paris, France.



INTRODUCTION

The intestinal microbiota is an etiologic factor in inflammatory bowel disease and particularly in Crohn's Disease.

The aim of this study was to determine if the composition of the fecal microbiota of patients in remission of Crohn's disease (in particular *Faecalibacterium prausnitzii*, *Escherichia coli*, *Coccoides*, *Bacteroides*, *Lactobacillus*, *Clostridium leptum* and *Bifidobacterium*) differs from that of healthy individuals.

MATERIALS AND METHODS

20 remission diagnosed Crohn disease patients (R-CD) and 20 healthy subjects (HS) were recruited at Hotel Dieu de France Hospital in Beirut, Lebanon, from April 1st 2012 till February 15th 2013.

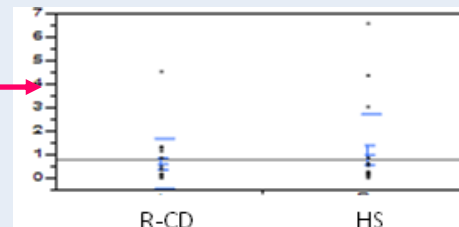
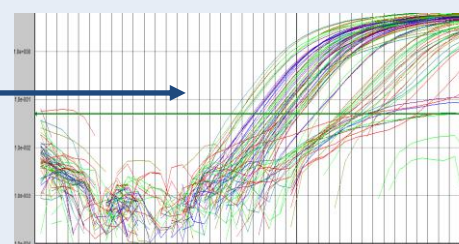
- Exclusions and inclusions criteria helped to avoid possible multi-factorial distortions in the microbiota composition.
- Fecal samples were collected and conserved at -80°C, then sent to the URL/INSERM U1157/UMR720 that functions as a referral laboratory for Crohn's disease studies.
- The 40 fecal samples were analyzed by quantitative real-time polymerase chain reaction (RT-PCR).
- Bacterial counts for *Faecalibacterium prausnitzii*, *Escherichia coli*, *Coccoides*, *Bacteroides*, *Lactobacillus*, *Clostridium leptum* and *Bifidobacterium* were transformed to logarithms (Log₁₀).
- The results obtained with the 2^{-ΔΔCt} method were used to compare the abundance of each of these seven bacterial species among these two groups (non parametric Mann-Whitney tests for statistical comparison).

REFERENCES AND FUNDING

- Gałecka, Mirosława, Patrycja Szachta, Anna Bartnicka, Liliana Łykowska-Szuber, Piotr Eder, and Andreas Schwartz. "Faecalibacterium Prausnitzii and Crohn's Disease - Is There Any Connection?" *Polish Journal of Microbiology / Polskie Towarzystwo Mikrobiologów = The Polish Society of Microbiologists* 62, no. 1 (2013): 91–95.
- Machiels, Kathleen, Marie Joossens, João Sabino, Vicky De Preter, Ingrid Arijs, Venessa Eeckhaut, Vera Ballet, et al. "A Decrease of the Butyrate-Producing Species *Roseburia hominis* and *Faecalibacterium prausnitzii* Defines Dysbiosis in Patients with Ulcerative Colitis." *Gut*, September 10, 2013.

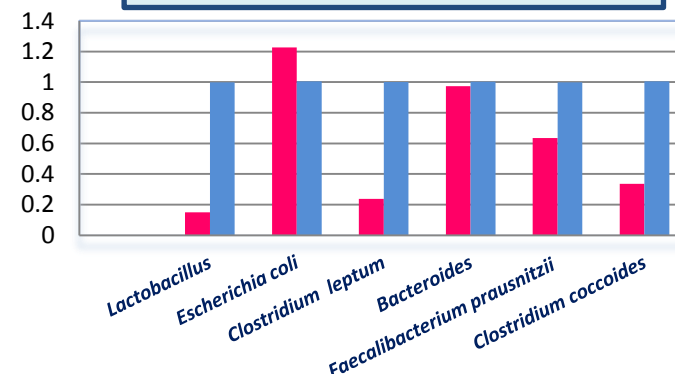
Funding: "Conseil de la recherche" of the Saint-Joseph University.

RESULTS



Is the difference in the relative expression of each bacteria between R-CD and HS statistically significant?

COMPARISON OF THE RELATIVE EXPRESSION OF THE STUDIED BACTERIAS IN R-CD TO HS



- ✓ SIMILARITY IN THE DISTRIBUTION OF THE R-CD DIGESTIVE FLORA TO THAT OF CROHN DISEASE PATIENTS (AS DESCRIBED IN THE LITERATURE)
- ✓ NO STATISTICAL DIFFERENCE BETWEEN THE GROUPS R-CD & HS

DISCUSSION AND CONCLUSION



In the present study, the composition of the fecal microbiota of R-CD patients **DID NOT SIGNIFICANTLY DIFFER** from that of HS.

However, our results remain original for different reasons:

- This study constitutes the **first Lebanese research** comparing the intestinal microbiota of healthy Lebanese subjects to that of patients in remission of Crohn's disease. The absence of statistical significance in this study might be explained either by:
 - a low statistical power **or**
 - by the fact that the microbiota of R-CD patients is quite similar to that of healthy subject.
- This is the **first study** examining the composition of intestinal microbiota in R-CD patients, as most of the studies explored it in patients with active inflammatory bowel diseases (1, 2).
- This study uses the **same methods as in international** publications on Crohn Disease which may facilitate the comparison between Lebanese and other populations' digestive microfloras.